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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,022	11/17/2003	Szu-Hsien Wu	WUSZ3002/EM	9729

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EXAMINER	
NGUYEN, LEE	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/713,022	WU ET AL.	
	Examiner	Art Unit	
	LEE NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2,9,24-27* is/are rejected.

7)☒ Claim(s) *3-8 and 10-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to the communication filed 1/8/07.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 9 and 24 rejected under 35 U.S.C. 102(e) as anticipated by Sugar et al. (US 6,728,517).

Regarding claims 1-2, Sugar teaches a dual band transceiver architecture for wireless communication (figures 1, 2, 3, 5, 8) comprising: a first transmitting/receiving antenna 12, 102 (figs. 1, 5) for receiving and emitting a band signal of 2.4 GHz, and connected to a first band-pass filter 22, 52 and a first switch 62 (fig. 1), and connected to a first power amplifying device 50, 226-248 (figs. 1-3) and a first balance/imbalance device 515 by switching the switch 110 (fig. 8); a second transmitting/receiving antenna 14, 104 (figs. 1, 5) for receiving and emitting a band signal of 5 GHz, and connected to a

second band-pass filter 22, 52 and a second switch 64 (fig. 1), and connected to a second power amplifying device 50, 226, 248 (figs. 1-3) and a second balance/imbalance 515 device by switching the switch 110 (fig. 8); a high frequency integrated circuit 10 (fig. 1, col. 10, lines 3-9) comprising:

a signal receiving portion 20 (fig. 1), coupling with the first and second switches 62, 64 (fig. 1) via the first and second balance/imbalance devices 515 (fig. 8), respectively, down-converting the signal received by the first transmitting/receiving antenna 12 to a first middle frequency (first IF at 144 (fig. 3)) and then to a first base frequency (1^{st} baseband at 148 (fig. 3)), and down-converting the signal received by the second transmitting/receiving antenna 14 (fig. 1) to a second middle frequency (2^{nd} IF at 154, fig. 3) and then to a second base frequency (2^{nd} baseband at 156 (fig. 3);

a signal emission portion 40 (fig. 1), coupling to the first and second switches 62, 64 (fig. 1) via the first and second power amplifiers 50 (fig. 1), respectively, and up-converting signals (46, fig. 1) which will be emitted by the first or second transmitting/receiving antennas 12, 14 (fig. 1); and a single frequency synthesizer 260 (fig. 2, 3) providing band-mixing signals for the down-conversion of the signal receiving portion 140, 170 (fig. 3) and the up-conversion 210, 230 (fig. 3) of the signal emission portion. It is noted that the term "wherein the first middle frequency approximates the second middle frequency" is not given weight because it simply expresses the intended result of the mixing signals.

Regarding claim 9, Sugar further teaches that before the signal emission portion in the high frequency integrated circuit performs the up-conversion, a digital signal processor is used for processing signal, and then the processed signal is separately outputted to a first digit-to-analog converter and a second digit-to-analog converter for converting the digital signal into an analog signal (col. 7, lines 15-30), and then the converted signal is separately outputted to the third orthogonal filtering amplifying unit 276, 278 and the fourth orthogonal filtering amplifying unit 286, 288 (col. 7, lines 15-30).

Regarding claim 24, Sugar also teaches that after a first local oscillator receives the signal outputted by a first phase lock device (inherently in frequency synthesizer 260 of figure 3), it will oscillate the signal and output the signal to the first high frequency local oscillator 260 and the orthogonal distributor 265 (fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugar et al.

Regarding claims 25-27, Sugar fails to teach that the signal reception portion performs the down conversion according to reference band-mixing signals which are 1.5 frequency multiplying and 0.5 frequency multiplying down-converted signals separately outputted by the first local oscillator, and that the 1.5 frequency multiplying down-converted signal outputted by the first local oscillator is inputted into the first high frequency wave-mixing device for band-mixing, and that the 0.5 frequency multiplying down-converted signal outputted by the first local oscillator is inputted into the first middle frequency wave-mixing unit for band-mixing. However, as suggested by Sugar in column 8, lines 26-37 and column 11, lines 39-56, different frequencies for different application can be used. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the multiple frequencies as claimed in order to meet a specific application.

Allowable Subject Matter

Claims 3-8 and 10-23 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the prior art of record fails to teach all the components connected and functioned as claimed.

Regarding claim 10, the prior art of record fails to teach all the components connected and functioned as claimed.

Response to Arguments

Applicant's arguments filed 1/8/07 have been fully considered but they are not persuasive.

In the remarks, Applicant contends that Sugar doesn't teach down-converting the received signals of different bands to the similar middle frequencies.

In response, first the term "similar" differs from "approximate". Second, such limitation is not given weight when it simply expresses the intended result (See MPEP, section 2111.04).

Applicant further argues that the present invention uses a single oscillator in figures 3-4, while Sugar uses plurality of oscillators.

In response, first, such argument is not in the claim. Finally, a synthesizer that uses a single oscillator with plurality of divider or multiplier is not new in the art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEE NGUYEN whose telephone number is 571-272-7854. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ANDERSON D. MATTHEW can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LEE NGUYEN
Primary Examiner
Art Unit 2618